



Greening Great Britain The drive for clean growth



Ready for school: Ensuring a positive start



Reducing obesity: Do restrictions on ads work?



Voices: Bringing a social science perspective to engineering

Welcome

to the Autumn issue of *Society Now*, the ESRC's regular magazine which showcases the impact of the social science research we fund.

This issue looks at how the Green Great Britain Week promotes the new clean growth strategy and celebrates the opportunities available.

Engineer turned social scientist Professor Nigel Gilbert explains how social sciences contribute to our understanding of engineering and manufacturing.

Features examine how employers can improve the wellbeing of their employees, and how practices and policies need to change to ensure all children have a positive start to school.

Rebekah Stroud of the Institute for Fiscal Studies asks whether restricting advertising of unhealthy foods helps tackle childhood obesity.

Opinions look at the recent UK Supreme Court judgment about feeding tubes and end-of-life decisions, and the psychological skills needed to win gruelling events such as the Tour de France.

Finally, please complete and return the reader survey inserted in this issue of the magazine – or complete it online at: esrc.ukri.org/societynow

Nick Stevens, Editor - nick.stevens@esrc.ukri.org





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CONTRIBUTORS

Arild Foss is ESRC writer/ editor and Communications Manager

James Dixon is ESRC Press Manager

Dr Helen Fitzhugh is Senior Research Associate at the University of East Anglia **Martin Ince** is a freelance science writer, media adviser and media trainer

Laura Mickes is Professor in the Department of Psychology at Royal Holloway, University of London Helen Victoria Smith is Assistant Professor, University of Nottingham

Rebekah Stroud is a Research Economist at the Institute for Fiscal Studies

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NEWS

Citizenship test heightens immigrants' sense of exclusion

HE MULTIPLE-CHOICE 'Life in the UK' test that must be passed as one component of the UK citizenship process to become a British citizen is in urgent need of fundamental review, says a new study from the University of Leicester.

Citizenship tests were introduced in the UK in 2005 amid heightened anxieties over immigration and the perceived failure of multiculturalism. "Such tests and other policy instruments such as citizenship ceremonies were viewed by some to be appropriate solutions to these challenges," explains researcher Professor Leah Bassel. "It was claimed they would facilitate integration into British society."

In a four-year project, researchers explored how migrants themselves experienced the citizenship test process. The study was based on more than 150 interviews with migrants of 39 nationalities and analysis of survey data, and highlighted many participants' discontent with how the citizenship test is constructed and implemented. Crucially, many migrants pointed to ways they felt the citizenship test process excluded them rather than helped them to integrate: that it was about immigration control rather than integration.

The study highlights migrants' criticisms both of the content of the 'Life in the UK' test and its lack of clear connection to their daily lives. Much of the knowledge needed for the test

Many migrants pointed to ways they felt the citizenship test process excluded them

that participants deem useful – such as how to access public services – has disappeared from the most recent version of the test and preparation materials. Researchers also found the test process to generate divisive and negative perceptions of some groups of migrants as 'deserving' and others as 'undesirable'. In addition, for some women, the time, money, energy and skills required by the test process can make existing inequalities worse and create new challenges.

In view of these challenges, the study suggests a full review by representatives ranging from the Home Office to civil society organisations, community representatives and migrants of different nationalities, social backgrounds and lengths of time in the UK.

A review, the research team recommends, must address the fear and anxiety the citizenship test process creates for migrants. The public should also be better informed about what is involved in becoming a UK

citizen beyond a kind of 'pub quiz', as many see it. In the short term, specific recommendations include reintroducing practical material about life in the UK into the test; allowing the test to be prepared for and taken in other languages; reducing fees and offering means-tested fees and/or interest-free loans to cover the costs of naturalisation; and making the citizenship ceremony optional rather than compulsory.

Contact Professor Leah Bassel, University of Roehampton Email leah.bassel@roehampton.ac.uk Web www2.le.ac.uk/departments/sociology/ research/uk-citizenship-process/ ESRC Grant Number ES/K010174/1

IN BRIEF

Criminologists and crime historians will examine public access to justice in England from the 1670s to the present. The study will analyse data on over 200,000 victims involved in trials over this period to discover more about past crime victims. Researchers aim to contribute to current endeavours to improve access to justice and recommend strategies for reducing or closing 'justice gaps'. *ESRC grant number ES/R006962/1*

FAITH-BASED ACTION

Christian communities have been involved in challenging urban poverty since the industrial revolution. The first interdisciplinary theological analysis of poverty in the UK since the 2008/2009 financial crash will analyse the nature, scope, extent and impact of Christian engagement with poverty. Researchers aim to increase awareness among policymakers of Christian engagement with poverty and enable more effective faith-based action on poverty across urban Britain. ESRC grant number ES/R006555/1

DRINKING CULTURE

From 200I-2016 the UK experienced a historic peak in alcohol consumption followed by a sharp decline. Researchers will explore how UK drinking culture changed over this I6-year period by analysing a unique dataset of 785,000 drinking occasions reported by 255,000 individuals. Findings will help development of policies and interventions to tackle harmful drinking. *ESRC grant number ES/R005257/1*





Housebuilding no help to Generation Rent

OUNG ADULTS ARE increasingly likely to rent privately and delay buying their own homes. 'Generation Rent' is often used to describe this trend but a new study at the University of Cambridge and UCL indicates that this masks growing housing inequalities *between* young people.

Findings from a three-year study of young people's transitions into homeownership show that the proportion of young adults who were homeowners by their early thirties fell sharply between 1991 and 2011. "Young people in their early thirties were three times as likely to live in the private rental sector in 2011 compared with 1991," says researcher Dr Rory Coulter.

Insecure jobs, low incomes, student debts, tighter mortgage lending and availability and affordability of housing stock all contribute to declining rates of homeownership. Yet other characteristics such as partnership status, educational attainment and labour force position are crucial to whether a young person buys a home.

Exploring the impact of young adults' family structures and backgrounds, findings show that young people aged 25-34 are more likely to become homeowners if their parents were more advantaged in the labour force or were homeowners. Where housing is more expensive, parental affluence becomes more important for the homeownership prospects of relatively advantaged young adults.

Yet neither parents nor house prices greatly affect the probability of

homeownership in young adulthood when individual level characteristics (such as having a low-paid job) make owning unlikely. Even access to the Bank of Mum and Dad is not the only or paramount force in determining ownership decisions when other factors are not conducive to owning.

"There are lots of different pressures and trends affecting young people's housing," says Dr Coulter. "Increasing the supply of houses is not suddenly going to lift rates of young adult homeownership back to their peak of 30 years ago."

Rather, the study indicates that policymakers must pay urgent attention to improving the security and affordability of rented housing where most young people live. At present, the Ministry of Housing, Communities and Local Government is consulting into increasing the security of private sector tenants by extending contracts from one to three years. "In the short term, improving affordability and security of tenure, particularly for the disproportionate number of disadvantaged young families who are being pushed into private renting, as well as improving access to social housing, is where attention should focus," he says.

Contact Dr Rory Coulter, University College London Email r.coulter@ucl.ac.uk Telephone 0207 679 0549 Web fthtproject.wordpress.com/page ESRC Grant Number ES/L009498/1, ES/L009498/2

Influence of childhood self-control

CHILDHOOD SELF-CONTROL is influential in shaping not only a person's later health but also their likelihood of being employed and having a pension, says a three-year study that examined data on 21,000 people from the UK tracked over four decades.

Self-control varies widely between children. The characteristics of those with low (vs high) self-control in this study were identified using teacher ratings and include poor attention, lack of persistence and impulsive behaviour. Findings show that children with low self-control by age 10/11 were twice as likely to smoke as adults compared to their more self-controlled peers. The study also revealed childhood selfcontrol to be an important predictor of adult heath, chronic illness and longevity. Researchers further found early life selfcontrol to be a powerful predictor of adult job prospects. "Children with high self-control spend 40% less time unemployed than those with a lower capacity for self-control as children," says researcher Dr Michael Daly. The study also finds childhood self-control to predict pension participation up to four decades later.

Interventions to help children increase their self-control could have lifelong benefits in terms of health and wellbeing, the study concludes.

Contact Dr Michael Daly, University of Stirling *Email* michael.daly@stir.ac.uk *Telephone* 01786 473171 *Web* www.michaeldalyresearch.com/project-01 *ESRC Grant Number* ES/L010437/1

Islington residents feel less victimised than 30 years ago

ESIDENTS FROM THE London Borough of Islington are less likely to feel victimised in 2016 than they were 20 or 30 years previously, says research into trends in crime and victimisation.

Based on a survey of 2,000 residents, findings reveal that the proportion of individuals and households citing crime as a major problem in their neighbourhood has declined significantly since a landmark study of victimisation was undertaken in Islington in 1986. Today only 13% of residents see crime as a major problem compared to 37% in 1986. And, while 30 years ago 70% of residents said crime had become more common in the area in the last five years, in 2016 only 14% believed crime was increasing.

"In general, the picture that emerges in 2016 is radically different from that presented in 1986 with residents more satisfied with their neighbourhood and less concerned about crime," says researcher Professor Roger Matthews.

Contact Professor Roger Matthews, University of Kent Email r.a.matthews@kent.ac.uk Telephone 01227 827477 Web www.islingtoncrimesurvey.com ESRC Grant Number ES/N00468X/1



IN BRIEF



SHAPING BREXIT VIEWS

An ethnographic study involving people across England and from differing backgrounds aims to understand the role of the media in shaping public opinion on Brexit. Researchers will undertake a quantitative media content analysis to identify themes, images, tone and frames in media coverage from the time of the referendum campaign to the present day as well as in-depthinterviews and observation of individuals' daily media practices. *ESRC grant number ES/R005133/1*

SOCIAL MOBILITY

Is Britain open and fair? Researchers will investigate how rates of social mobility vary across different regions, cities and towns in Britain and how mobility has been affected by changes in the school system. The study is based on the Office for National Statistics Longitudinal Survey which contains linked census records for over two million people between 1971 and 2011. *ESRC grant number ES/R00627W1*

ACCESS TO ENERGY

Some 700 million people in Sub-Saharan Africa (SSA) lack access to electricity. A new study aims to design integrated and transferable development strategies for the local renewable energy sector capable of delivering comprehensive, sustainable rural electrification in SSA. Researchers will use a comparative country case study approach, focusing on contrasting situations in Uganda and Zambia. *ESRC grant number ES/S000941/1*

IN BRIEF



BENEFIT SANCTIONS

If benefit claimants fail to meet conditions placed on their benefits (such as Jobseeker's Allowance) they can be sanctioned, ie, their benefits are stopped for a period. A new study will explore whether sanctions encourage claimants to return to employment more quickly and whether benefit sanctions lead to claimants having worse physical or mental health, or making greater use of health services. ESRC grant number ES/R005729/1

DIGITAL EVIDENCE

Digital evidence is increasingly used in the investigation of homicides, sex crimes, missing persons, child sexual abuse, drug dealing, fraud and civil disputes. Law enforcement agencies are struggling to address the growing number of cases requiring digital forensic analysis. New research will explore how current practices can be improved and the usefulness of digital evidence in crime detection maximised. ESRC grant number ES/R00742X/1

TEACHER SHORTAGES

The current teacher supply 'crisis' is expected to worsen. New research will explore why teacher supply is insufficient to meet demand and why modelling has failed to predict accurately the number of teachers needed. Drawing on sources ranging from official teacher data to a survey of undergraduate plans and motivations, researchers aim to clarify the complex determinants of teacher demand and supply.

ESRC grant number ES/R007349/1

Increasing inclusive schooling in China

WHILE NEARLY HALF of China's designated disabled children are still placed in segregated special schools, progress has been made to enrol these students into mainstream schools. But 'included' children are still experiencing marginalisation and exclusion, says the recent project 'Counting Every Child In' (CECI). In the last year, CECI researchers have worked with key stakeholders in China to increase understanding of how to support disabled children's access to inclusive and quality education. CECI recommendations include the need for greater clarity in the conceptualisation of inclusive education, better teacher education, bringing children's voices into the development of more responsive, enabling and inclusive practice, and a collaboration to overcome deeprooted barriers to inclusive schooling.

Contact Dr Yuchen Wang, University of Edinburgh Email yuchen.wang@ed.ac.uk Telephone 0131 651 6336 Web www.yuchenwanguk.wixsite.com/ ceciproject ESRC Grant Number ES/P009670/1

Flexibility not helping workers

LEXIBLE WORKING IS not necessarily helping workers to relieve their work-family conflict, suggests a recent report into work autonomy, flexibility and work-life balance across Europe.

"The outcome of flexible working hugely depends on the context in which it is being used," explains researcher Dr Heejung Chung. For example, flexibility in the boundaries between work and family can actually lead to an expansion of work.

One reason flexible working can make work spill over into family life is that workers worry about work when not working. Employees may also work longer hours, encroaching into family time. Some workers also appear to work harder to compensate for a potential negative stigma for working flexibly.

In addition, flexible working may not always lead to better workfamily balance because it increases the potential for women to work after childbirth, when previously they may have stopped working altogether.

"While flexible working can allow women to maintain their labour market positions because they can meet both work and family demands, it means more conflict," says Dr Chung.

Businesses and governments must address these challenges so that good flexible working practices can be developed. Dr Chung says: "Work culture needs to change the image of the 'ideal worker' from someone who only works, and only thinks of work, to that of someone who is able to manage both work and other aspects of life, enabling a more productive and happier society overall." A step forward would be to ensure a 'right to flexible work' rather than the 'right to request flexible work'. This would ensure flexible working arrangements are available for all workers and not only the few.

Contact Dr Heejung Chung, University of Kent Email h.chung@kent.ac.uk Telephone 01227 823624 Web www.wafproject.org ESRC Grant Number ES/K009699/1





Offenders view short-term sentences as waste of time

NLIKE LONG-TERM prisoners, those with short, repeated sentences rarely view such prison terms as transformative or effective at rehabilitation or deterrence, says a recent study among prisoners themselves into the meaning of serving short-term prison sentences repeatedly and over a long period of time.

In a three-year study, researcher Dr Marguerite Schinkel interviewed 35 Scottish offenders who had been repeatedly punished over at least 15 years and whose most recent sentence was one of short-term imprisonment.

"For our interviewees the meaning of these short-term sentences changed over time," says Dr Schinkel. It was common for some to experience their early sentences as a pleasant surprise, after the initial fear of going to prison was overcome. Early sentences were often very short, which meant it was possible to see them as mostly fun. As prisoners started to become older, prison became both more and less painful. Increasingly, it felt 'like home' but feelings of missing out on experiences in 'real' life such as birthdays, Christmases and time with their children also grew.

The meaning of sentences also changed with prisoners' circumstances outside. Changes in patterns of addiction or offending meant, for example, that short-term imprisonment might mean a chance to get off drugs – a potentially lifesaving measure. Sometimes prisoners described intentionally offending in order to be imprisoned, or asking for a prison sentence in court, due to a lack of emergency drug services and housing on the outside. But, in general, the lack of impact of short, repeated sentences on prisoners' futures underpinned the view that these prison terms are a waste of life and time.

Interestingly, the study found that even those labelled as 'persistent offenders' often experienced prolonged periods of stability, during which offending was minimal or nonexistent. These periods tended to be ended by some kind of traumatic experience in their adult lives resulting in a return to drugs or alcohol abuse.

"Such positive periods of stability are not recognised by the criminal justice system, which often returns people to prison on the basis of their record alone, when a community sentence at such points might prevent a return to the cycle of offending and imprisonment," says Dr Schinkel.

Contact Dr Marguerite Schinkel, University of Glasgow Email marguerite.schinkel@glasgow.ac.uk Telephone 0141 330 8257 Web www.researchunbound.org.uk/ punishmentcareers/ www.my-sentence.com ESRC Grant Number ES/L009389/1

Home-based businesses lack policy support

THE SIGNIFICANCE OF home-based businesses for entrepreneurship in cities is underestimated, suggests a seminar series organised by researchers from the Universities of Southampton, Middlesex, Glasgow and Delft University of Technology.

"Home-based businesses are significant as approximately half of all small- and medium-sized businesses in the UK and the US are home-based, and the proportion of home-based businesses is rising over time," says researcher Dr Darja Reuschke. Today 59% of UK small businesses without employees and 24% of small businesses with employees are home-based.

Researchers believe the needs of home-based businesses are largely ignored by policymakers. A policy focus on, for example, the creation of entrepreneurial environments in designated areas such as Enterprise Zones misses the great potential for local growth in entrepreneurship and self-employment which occurs 'under the radar' of enterprise policy and business services, Dr Reuschke argues.

Home-based businesses have specific needs such as digital connectivity and access to IT support and other business expertise. And they can be hindered by, for example, housing regulations which prevent people from using their homes for business purposes. New perspectives on local economic growth are required that view home-based business activities as essential in increasing start-up rates and inclusive entrepreneurship, researchers conclude.

Contact Professor Dr Darja Reuschke, University of Southampton Email d.reuschke@soton.ac.uk Telephone 023 8059 2866 Web www.entrepreneurship-space.co.uk ESRC Grant Number ES/L001489/1



Cyber attacks key threat to UK

INTERNATIONAL TERRORISM, ISLAMIC fundamentalism and cyber attacks are viewed by the public as the most critical threats to UK interests over the next 10 years, says the first ever national survey of security concerns and foreign policy attitudes.

The survey of 2,000 UK adults and 597 security experts, drawn from active military service as well as the Defence Academy and Royal United Services Institute, reveals both differences and similarities between the concerns of the UK's security 'elites' and the broader public.

Among the security experts surveyed, 73% identified cyber attacks on UK computer networks as a critical threat, while one in four considered Russia's territorial ambitions, climate change, international terrorism and the possibility of unfriendly countries becoming nuclear powers as similarly threatening to UK vital interests.

For economic and social issues, 57% of experts compared to 81% of the public considered a large number of economic migrants entering the UK a threat. And 59% of experts vs 80% of the public see UK interests threatened by economic competition from low-wage countries.

UK public and defence experts agree in their support for a strong national military with no reduction in defence spending and the need for strong security alliances with the EU. Researcher Dr Catarina Thomson says: "Interestingly, over two-thirds of Leave voters in our survey still supported strong security alliances with Europe."

i Contact Dr Catarina Thomson, University of Exeter Email c.p.thomson@exeter.ac.uk Telephone 01392 725595 Web rusi.org/sites/default/files/201802_ whr_2-18_mind_the_gap.pdf ESRC Grant Number ES/L010879/1





Dark web plays growing role in illegal arms

HE 'DARK WEB' is playing a growing role in the trade in firearms, ammunition and explosives, says the first study of the size and scope of the illegal arms trade on the dark web. "Terrorists and criminals can conduct illegal transactions protected by the veil of anonymity offered by the dark web, from the safety of their homes, and without requiring any prior connections to suppliers," says researcher Dr Giacomo Persi Paoli.

Findings show that the majority of firearms available on the dark web (60%) come from the US but that Europe represents the largest market for dark web firearms. Overall, the dark web is increasing the availability of more recent and powerful firearms for the same, or lower, price than would be available on the street or the black market.

Although the arms trade on the dark web is very small compared to the legal trade of arms worldwide, or even compared to the offline black market, the dark web's potential to anonymously arm criminals, as well as vulnerable and fixated individuals, is of considerable concern. The study suggests that while governments and law enforcement agencies will be required to adapt strategies to address the dark web, traditional policing and investigative techniques will remain vital. These include traditional firearms control measures designed to tackle illicit trafficking, such as efficient marking and record-keeping and good stockpile management.

"The dark web offers a platform to trade firearms, but does not create completely new firearms," says Dr Persi Paoli. "If properly implemented, all measures designed to tackle illegal arms trafficking 'in the real world' may reduce the availability of illegal weapons to be traded. The only exception is the availability on the dark web of 3D models for homemade 3D-printed firearms. This new element will require further investigation as 3D printing continues to develop and grow." ■

Contact Dr Giacomo Persi Paoli, RAND Europe Email giacomo_persi_paoli@rand.org Telephone 01223 353329 Web www.rand.org/pubs/research_reports/ RR2091.html ESRC Grant Number ES/P001408/1

Immigrants left out of legislatures

'PATHWAYS TO POWER', the first study of its kind to compare systematically the political representation of citizens of immigrant origin (IO) in the UK, Belgium, France, Germany, Greece, Italy, the Netherlands and Spain, finds that migrants and their native-born offspring are most likely to gain elected office in the Netherlands and UK. South European countries fare worst in the inclusion of citizens of immigrant origin in their national legislatures.

The representation of IO citizens in elected offices is, says researcher Professor Laura

Morales, "the gold standard for political inclusion". Overall, the findings (which cover 1990 to 2015) show IO citizens to be underrepresented in all eight national parliaments but that centre-left parties contribute most to including those of IO origin in the national political arena.

Contact Professor Laura Morales, Sciences Po Email laura.morales@sciencespo.fr Telephone +33 (0)145 49 5621 Web pathways.eu ESRC Grant Number ES/K006452/1

Teachers' role in peacebuilding

MPRESSIVE POLICY GOALS must be translated into reality if teachers are to play a more significant role as peacebuilders in the post-conflict contexts of Rwanda and South Africa, says a major new study of education and peacebuilding funded by the ESRC/DfiD Joint Fund for Policy Alleviation.

Both Rwanda and South Africa have emerged peacefully out of intense and violent conflicts in the 1990s and have been important sites for a range of post-conflict interventions, particularly in terms of education policy. Yet peace and social cohesion remain a challenge and far from being realised.

As part of the project researchers considered what a socially cohesive and peaceful education system and classroom might look like – one that is well resourced, as well as staffed by teachers who are well educated and supported, and which promotes democratic participation across diverse constituencies.

Findings reveal that promoting social cohesion through education requires context-specific, proactive strategies as well as recognition that education alone cannot remedy all forms of inequity. Teachers, moreover, require education officials and teacher education providers to equip them with a variety of teaching approaches and tools that will allow them to engage productively with learners to promote peace and social education.

Contact Professor Yusuf Sayed, University of Sussex Email y.sayed@sussex.ac.uk Telephone 01273 872876 Web www.sussex.ac.uk/cie/projects/current/ peacebuilding ESRC Grant Number ES/L00559X/1



IN BRIEF



ABUSE PREDICTION

Child protection relies heavily on risk prediction to identify vulnerable families whose children may become abused. Current algorithmic risk prediction systems are raising concerns due to data indicating their poor accuracy in child protection outcomes and a high number of false positives and false negatives in risk prediction. Researchers aim to investigate a new method of calculating risk that will better support child protection. *ESRC grant number ES/R00983X/1*

DRUG POLICY REFORM

Since 2000 several countries have shifted from a policy of drug prohibition to one of reform. In discussion of reform, drug takers' voices have been largely absent. Researchers aim to actively involve drug takers in debate by educating them about alternative policy approaches and engaging them in workshop discussions. Findings will help formulate a drug policy action plan and inform future drug policy development. *ESRC grant number ES/R007225/1*

OPEN SOURCE EVIDENCE

Human rights investigations are turning to Open Source Intelligence (OSINT), such as social media content and satellite imagery, to overcome the physical, security and societal barriers to gathering reliable evidence. OSINT could democratise the flow of information on international human rights and violations in an unprecedented way. Researchers will examine how OSINT could contribute to human rights investigation and documentation. *ESRC grant number ES/R00899X/1*

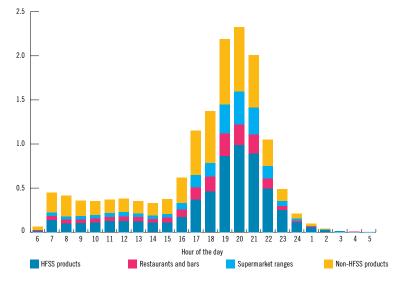
Overexposed to unhealthy ads

Restricting advertising of unhealthy foods is one policy to deal with rising rates of obesity and diet-related disease. But do advertising restrictions help tackle childhood obesity? By **Rebekah Stroud**, Institute for Fiscal Studies

S INCE 2007, FOOD and drink products that are high in fat, sugar or salt have been banned from being advertised during television programmes that are aimed at children. There has recently been discussion about whether these restrictions should be extended to ban advertising of foods high in fat, sugar and salt during all television broadcasting before the 9pm watershed.

Restricting advertising is one of many policies that have been either introduced or discussed as a way to deal with rising rates of obesity and dietrelated disease. Research by Public Health England finds that one in three children are overweight or obese by the time that they leave primary school, and obesity prevalence is particularly high in the most deprived parts of the country. Obesity is associated with a number of poor health outcomes such as diabetes, heart disease and cancers. The fact that some of these costs are borne by wider society (eg, through an increased burden on the NHS), and that people may not fully take into account the future costs of poor diet, provides a rationale for government intervention.

Children's exposure to advertising of food and drinks products by hour of day and advert type



Note: HFSS refers to products high in fat, sugar or salt (those foods with a nutrient profile score equal to or above 4, and drinks with a score equal to or above 1). Impacts are a measure of the number of pairs of eyes that sees each given advert. For details of how adverts are categorised as for HFSS products, non-HFSS products, restaurants and bars, or supermarket ranges, see the IFS Briefing Note BN 238, 'Children's exposure to TV advertising of food and drink'

Source: Authors' calculations using data from AC Nielsen, BARB data and the Kantar Worldpanel.

There is concern that exposure to advertising of unhealthy food and drinks leads individuals to overconsume such products, and that advertising has a particularly large influence on children who are less able to discern the persuasive intent of advertising.

A Restrictions on advertising might encourage companies to reformulate their products

The hope is that by restricting advertising of these products, consumption of unhealthy foods will fall.

Children still see a large amount of television advertising for unhealthy food and drinks, despite the ban on advertising unhealthy foods during children's programming. Recent research by the Institute for Fiscal Studies studied the amount of advertising that children saw for different food and drink at various times of the day. The figure below left shows how the amount of advertising that children saw for healthy and less healthy products or brands varied throughout the day, with the bar at 9pm indicating the watershed. Fifty per cent of the television advertising of food and drink that children saw was for less healthy products or brands - 39% of this was for food and drinks products that are high in fat, sugar or salt (HFSS), and a further 11% was for restaurants and bars, most of which was for fast food restaurants such as McDonalds.

The reason that children are still able to see this much advertising for less healthy food and drink products is that the current restrictions apply only to 'children's television', which is defined as television on children's channels or programmes where children make up at least 25% of the audience. This definition excludes some of the most popular shows among children, such as Britain's Got Talent or X Factor. Indeed, despite attracting far more young viewers than Spongebob Squarepants, Horrid Henry or Peppa Pig (three of the top 'children's television' shows in 2015), shows such as Britain's Got Talent and X Factor are not subject to existing restrictions as they also attract a large number of adult viewers, meaning that the share of the audience made up by children was 13% for Britain's Got Talent and 12% for X Factor in 2015.

This has led to calls from health campaigners and leaders of all the main opposition parties for a ban on all television advertising of foods and drinks that are high in fat, sugar and salt prior to



FEATURE OVEREXPOSED TO UNHEALTHY ADS



the 9pm watershed. As can be seen in the figure on the previous page, in 2015 70% of the television advertising that children saw for foods and drinks high in fat, salt or sugar and for restaurants and bars was shown before the 9pm watershed and therefore could have been affected had restrictions applied before the watershed.

The effectiveness of advertising restrictions ultimately depends on how food and drink companies respond to these restrictions, how consumers respond to a reduction in the amount of advertising they see, and how the regulations are enforced.

Food and drink companies might respond in a number of ways. For example, restrictions on advertising might encourage companies to reformulate their products so that they are no longer high in fat, sugar and salt, and can therefore still be advertised. Alternatively, food and drink companies might respond by shifting the advertising they would have placed in pre-watershed slots to after the 9pm watershed, or to other mediums such as internet advertising, which may mean the fall in total advertising exposure of children is less than anticipated. Manufacturers and retailers may also change the prices of their products, which will affect the overall impact of the policy.

The response of consumers to seeing less advertising of unhealthy food and drink is also an important factor in determining the effect of extending restrictions. For example, if advertising leads consumers to switch between brands of a similar nutritional composition (eg, buying a KitKat rather than a Crunchie), restricting advertising would have a limited effect on diet quality. In contrast, if exposure to advertising leads people to buy a KitKat when they otherwise would have bought an apple (or nothing at all) then reducing Shows such as Britain's Got Talent and X Factor attract a large number of young viewers, with the share of audience made up by children being 13% for Britain's Got Talent and 12% for X Factor. advertising exposure is more likely to improve diet quality. Estimating the relative importance of these two effects is difficult, but is an important topic for future research.

The fact that an advert for one product may affect demand for similar products is one reason why the design of regulations to prohibit the advertising of unhealthy foods can be complex. Currently, the regulation states that an advert should not be permitted during children's television if it 'has the effect of promoting an HFSS product'. A recent ruling by the Advertising Standards Agency determined that Coco Pops Granola (a non-HFSS product) could not be advertised during children's television because it had the effect of simultaneously promoting the original Coco Pops Cereal (a HFSS product). On the other hand, McDonald's is permitted to run adverts during children's television, as long as they advertise non-HFSS products (eg, carrots). This highlights the challenge of designing regulations aimed at restricting exposure to unhealthy food and drink adverts.

Children see a lot of television advertising of unhealthy foods and drinks during television that is not covered by current regulations. Extending regulations is just one of many possible policy responses to the growing problem of childhood obesity. The extent to which it will be successful depends crucially on how people change what they buy and eat. Ultimately, it is likely that a broad package of measures will be necessary to deal with escalating costs of a less healthy population.

Rebekah Stroud is a Research Economist at the Institute for Fiscal Studies. www.ifs.org.uk/people/profile/4156 *Web* www.ifs.org.uk/people/profile/4156



Peak performance

Today's most successful athletes are not only in top physical condition, they also employ an array of psychological skills to help them win. By **Andy Lane**

ERAINT THOMAS WON the 2018 Tour de France finishing I minute 51 seconds faster than Tom Dumoulin, his closest rival. Given the race is over 3,500km and 21 stages, this is a very small margin of victory. Thomas maintained a remarkable degree of consistency, covered attacks from rivals, picked up valuable time bonuses that put pressure on his rivals, and attacked when an opportunity arose. One pivotal one was when Thomas won Stage 12 at Alpe d'Huez in a sprint finish, and from this point he led until eventual victory in Paris. As a sport psychologist watching, what can we learn from Thomas's performance, and how might a sport psychology help other riders or competitors taking part in multistage endurance events perform better and enjoy the event more?

Thomas's remarkable consistency required being able to ride hard when feeling tired. In competition, masking signs of fatigue is very important. Showing signs of fatigue can give an opponent motivation to attack. Masking fatigue is also important in the context of your own team. If the team leader appears to fatigue, then this can create a mindset that simply finishing the stage is okay rather than winning. If the leader acts confidently, and inspires team members to feel energetic, this sense of collective positive mood then helps the team leader sustain a positive mindset – a virtuous circle.

To be able to stay positive when experiencing intense fatigue, we should look at ways to manage how you interpret your inner dialogue. First, it is important to recognise that intense exercise feels tough and how you interpret that is a decision that is not inevitable; recognising that there is some degree of choice is the key part to learning to reinterpret those signals.

During intense exercise, an intense heartbeat, burning sensations in the working muscles, and heavy breathing provide messages that tell you to slow down. You don't have to reduce intensity of course. I encourage use of skills such as selftalk and imagery to manage this negative inner dialogue. Re-appraising this inner dialogue as unhelpful noise and so making a decision not to follow its message is what is needed. Reappraising these feelings as a necessary part of goal attainment, and therefore you expect to feel them, also helps. In terms of managing performance, I encourage focusing on what is needed to deliver performance in that moment. If riding an uphill section, for example, focusing on being relaxed in the upper body and getting a rhythm in the legs, something often done by using an image of steam



engine wheels and seeing the circular motion as your feet in the pedals, is useful. By keeping the focus narrow and in the here and now, the evaluation that you can do it stays positive. Via this mechanism, self-confidence to keep going at that intensity remains and performance remains at the required intensity.

Not being overwhelmed by the size of the task is key part of a successful mental preparation. It would be easy to start thinking you can't ride hard in the first few days, and somehow saving yourself for later in the race. Thinking how you might feel on day 19 on day 1 is not useful as there are too many things outside of your control. Even thinking how you might feel at mile 50 at mile one involves a lot of guesswork – you don't know how the other riders will race, which is one hugely uncontrollable variable. And so teaching yourself to focus on the controllable factors, breaking the task into small chunks, can help create a mindset that you can do each one, and if this is done as a team exercise, it can create a mindset that the team can do it.

In summary, Geraint Thomas produced a set of remarkable performances to win the 2018 Tour. He showed mental strength, a strong inner self-ability, and worked well in a successful team. Psychological skills in terms of working on focus, recognising how your mood might affect another's mood, and how their mood might influence yours is worth considering. Your interpretation of fatigue is crucial for endurance performance, and so strategies that help you manage that better should be useful.

Andy Lane is a Professor of Sport Psychology at the University of Wolverhampton. He is a Fellow of the British Association of Sport and Exercise Sciences (BASES). He is Health Professional Council-registered and a British Psychological Society Chartered Psychologist. *Telephone* 01902 322862 *Twitter* @andylane27

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Greening Great Britain

The UK wants to continue on a path of decarbonisation through its new clean growth strategy – and this desire is embodied in the inaugural Green Great Britain Week. What can be done to tackle climate change across all levels of society? By **James Dixon**

T HAS BEEN AN unrelenting summer with soaring temperatures around the world, parched fields across the country revealing historical sites and ample opportunity for Brits to engage in their favourite conversational topic: discussing the weather. Human behaviour is affecting the world's climate in an unprecedented manner and this is cause for concern.

The Met Office stated that atmospheric greenhouse gases reached their highest levels in the instrumental record in 2017, with average CO2 concentrations reaching a record high of 405ppm (parts per million). According to the National Snow and Ice Data Centre in the US, Arctic sea ice reached a record low maximum extent in 2017 in a 38-year satellite record period. The picture offered by these statistics and others is bleak and sometimes climate change is presented as insurmountable.

As climate change continues to encroach on people's lives though, initiatives are being undertaken at national and local levels to tackle the issue.

A Renewables have become so competitive that they are displacing fossil fuels

Greg Clark MP, Business Secretary said: "Looking to the future, a combination of falling costs and global commitments are creating new opportunities for British businesses to lead the world in the development, manufacture and application of low-carbon technologies.

"Our Clean Growth Grand Challenge is a commitment from government to work with industry to make this happen. There is a big business opportunity here, and we will be working with business to highlight these opportunities during the first ever annual Green Great Britain Week, starting on 15th October."

Clean growth seeks to transition to a lowcarbon society while growing national income: it aims to combine increasing productivity along with improvements and protections for the environment.

Professor Andy Gouldson of the ESRC-funded Centre for Climate Change Economics and Policy, hosted jointly by the University of Leeds and London School of Economics, has worked extensively on the opportunities for – and critically also the limits and contradictions of – clean and green growth. His work has focused especially on the economics of low-carbon cities and communities, and he is currently working on the different ways of financing the low-carbon transition.

He said: "Green Great Britain Week is there to celebrate the opportunities available in the green sector. In our contribution to it, we're interested in the local opportunities – our research shows that there's a massive opportunity for low-carbon or climate-resilient development in cities and communities across the UK. As an example, the Leeds City Region could save over \pounds I billion a year in energy bills if it invested in all available profitable energy efficiency and low-carbon options. This would create nearly 15,000 years of employment and emissions would fall by nearly a quarter, over and above what is currently expected."

The UK Government has allocated $\oint 2.5$ billion of investment in low-carbon innovation between 2015-2021 and committed to reducing greenhouse emissions by at least 80% of a 1990 baseline by 2050 as part of the Climate Change Act. It cannot tackle climate change alone though.

"The challenge is that clean development can require a lot of investment in the short term even if it would be more productive economically, and socially and environmentally in the medium to long term. Stimulating that investment is a major challenge. This can mean getting the big pension funds and institutional investors involved, but the really exciting opportunities are for communities to invest in their own area. For example, residents of the Leeds City Region have an estimated f_5 billion saved in ISAs. We could offer them an opportunity to invest in clean development in their region and get comparable returns whilst also creating jobs, value and social benefits whilst also decarbonising the regional economy. This has started to happen in Leeds and it could be transformative."

Initiatives such as UK100 have been set up to connect local stakeholders in a bid to transition to 100% clean energy by 2050. UK100 brings together local government leaders with businesses and national government to implement clean energy transition plans that are cost-effective.

Polly Billington, Director of UK100, said: "Local authorities are really feeling the squeeze, with budgets increasingly tight. They have no statutory responsibility around energy so if they are going to embark on energy initiatives, the projects have to at least wash their own face, and preferably generate income that can be deployed elsewhere to sustain



services. There are opportunities through offering flexibility services, especially if the local authority invests in renewable and sustainable energy generation like solar, wind and energy from waste. Battery storage is a real game changer, enabling renewable projects to contribute to grid balancing which can generate income."

Clean development is being driven both by policy and the market, and this can be seen in the energy sector in the UK where there are opportunities for innovative renewable energy technologies such as on-shore and off-shore wind to displace legacy means of energy generation.

Professor Gouldson said: "At the moment, over 25% of electricity in the UK comes from renewable sources – due to a combination of government policies and market forces. Sometimes the media and others make a big deal out of the supposed extra cost of this and the impact on energy bills, but they overlook the fact that much of our energy infrastructure needed updating anyway. If we have to make massive investments in new energy infrastructure, there are obvious benefits from doing so in a way that improves our energy security and offers wider societal and environmental benefits as well as future-proofing the energy network.

"In the UK and globally, renewables have become so competitive that they are displacing fossil fuels – especially coal and to some extent also gas – so there are some grounds for optimism. The big question is whether the rates of change we have seen can be sustained, and whether the forces are strong enough to deliver the rapid and deep transition that we need." Hot weather across the UK during the 2018 summer may have been a source of pleasure for many, but it also highlighted how human behaviour is affecting the world's climate.

Local action can have global impact in the bid to tackle climate change as more people seek to shoulder the collective burden of transition to a low-carbon society. "In Leeds we have created the Leeds Climate Commission to bring together all of the public, private and third sector actors in the city to build our capacity - as a city - to step up and take advantage of clean development opportunities. The Commission acts as an independent voice to provide advice on implementing steps towards a low-carbon and climate-resilient future. Through this cross-sector collaboration, projects are emerging and investments are happening that help the city meet its climate reduction targets. Our broader agenda is to energise the city and show that there are new ways of tackling challenging agendas. There is a lot of interest in replicating the Commission in other cities and communities across the UK," adds Professor Gouldson.

Green Great Britain Week can demonstrate the progress made on climate action, not least by showing what can happen when we unite people, communities and businesses against climate change.

The ESRC Centre for Climate Change Economics and Policy (CCCEP) brings together some of the world's leading researchers on climate change economics and policy, from many different disciplines. It was established in 2008. The Centre is hosted jointly by the University of Leeds and the London School of Economics and Political Science (LSE) and is chaired by Professor Lord Stern of Brentford. The Centre's mission is to advance public and private action on climate change through rigorous, innovative research. *Email* a.gouldson@leeds.ac.uk *Web* www.cccep.ac.uk

Creating positive change

Jenny Kitzinger and **Celia Kitzinger** reflect on the significance of the recent UK Supreme Court judgment about feeding tubes and end-of-life decisions

Wales, it was widely believed that it was necessary to get court approval before feeding tubes could be withdrawn from patients in permanent vegetative or minimally conscious states – even if doctors and family agreed that the feeding tube was not in the patient's best interests. Such court applications were thought to be mandatory ever since the first such case (the Hillsborough victim Tony Bland) was brought before the courts almost a quarter of a century ago. But in July 2018, the UK Supreme Court ruled that there is no requirement for court approval so long as relevant law and professional guidance are followed and there is no doubt or dispute.

The ability of research to create positive change in policy and practice needs more than academic publications

We welcome the Supreme Court judgment because our research found that the apparent requirement for judicial scrutiny of these cases was acting as an obstacle to delivering patient-centered care, leading to long-term and invasive treatment that could be futile or unwanted. In particular our findings highlighted that the legal process could deter both clinicians and families from considering whether or not a feeding tube was in a patient's best interests. Even when this question was considered, there could be long delays before a decision was enacted because of the length of time it can take to get cases to court.

The research – by members of the Coma and Disorders of Consciousness Research Centre – combined multidisciplinary approaches (across economics, clinical practice, anthropology, sociology etc) and in-depth research into family experience and patient pathways. We disseminated our findings widely including, with the help of ESRC funding, creating e-learning resources for professionals and a multimedia resource for families – www.healthtalk. org/peoples-experiences/nerves-brain/familyexperiences-vegetative-and-minimally-consciousstates/topics – which won awards both from the ESRC (for 'Impact in Society') and from the British Medical Association (for Patient Information on Ethical Issues).

Partly as a consequence of these publicly available resources we were asked by professionals and by families to provide support for them as they went through the court process, and on one occasion



acted as 'litigation friend' in court. Some of these cases have resulted in key precedent-setting judicial decisions in which judges made explicit statements that they believed it was not mandatory for all such cases to come to court.

We also contributed to professional development events (including at an 'away day' for judges) and served on working parties of the Royal College of Physicians and British Medical Association developing professional guidelines. In 2015 we initiated a working party of our own - specifically to collaborate with legal and clinical experts to explore ways of challenging the apparent requirement for court applications: our recommendations (supported by the British Medical Association) were presented to the Court of Protection Rules Committee. We were particularly pleased that our research publications have been cited as evidence (both orally and in submissions to the court) in several cases including in the Supreme Court itself.

The Supreme Court judgment is an important step towards improving patient-centred care. Our experience suggests that the ability of research to create positive change in policy and practice needs more than academic publications – it requires 'user engagement' in the development of research projects from the outset and encouraging dialogue as the research evolves.

Celia Kitzinger and Jenny Kitzinger are Co-Directors of the Coma and Disorders of Consciousness Research Centre based at Cardiff University. Celia is Honorary Professor in the Cardiff School of Law and Politics. Jenny is Professor in the Cardiff School of Journalism, Media and Culture. *Telephone* 029 208 74571 *Email* kitzingerj@cardiff.ac.uk Coma and Disorders of Consciousness Research Centre *Web* cdoc.org.uk *Twitter* @CDOCuk

Beyond free bananas

To improve employee wellbeing, organisations must be genuinely interested in the employee experience and doing the basics well: good communication, management and job design – and it requires changes in culture and management style. By **Dr Helen Fitzhugh**

HAT COMES TO mind when you hear the words 'workplace wellbeing'? If you automatically think of fruit baskets, free massages and playful Silicon Valley office space, you are not alone. I know, because I recently spent time listening to the ambitions and fears of business leaders on workplace wellbeing for a study funded by the National Productivity Investment Fund and the ESRC.

Quirky examples of employee perks can make managers wonder whether it is possible to 'go too far' in indulging employees when it comes to promoting employee wellbeing. This is a shame, because research and reviews by the work and learning team at the What Works Centre for Wellbeing suggest that genuine attempts to promote workplace wellbeing are actually far more about doing the basics well: good communication, management and job design. These are not 'nice to have' extras, but the fundamental conditions for productive work. My project involved taking this message out to local factories and offices and listening to the response.

Professor Kevin Daniels (lead for the work and learning stream of the What Works Centre for Wellbeing) highlighted for me key ways that organisations could improve employee wellbeing. Opposite: The modern office is designed to make work a better place but it takes more than just open plan spaces. Below: There was a time when a few potted plants were thought to be key to improving workplace wellbeing.



These ranged from the importance of effective signposting and support for people struggling with physical, mental or other difficulties, to fostering good relationships, to training managers and designing quality jobs.

The Taylor Review of Modern Working Practices highlighted the need to concentrate on job quality at the national and local level. High-quality work involves job security, reasonable demands, a clear role, varied tasks and the opportunity to use your skills and develop new ones. Also, relationships are central to experiences at work. Think of how the way your co-workers and managers treat you can either make or break your working day. All of this may sound obvious. Yet my experience of taking this message out to workplaces showed that it needed to be said, and said loudly.

"It's very thought-provoking – you are giving me a to-do list!" said one of my participants. She was an experienced and committed professional, who wanted to hear research findings and act upon them. Her response was a reminder that actively taking the findings of social research out into the wider world has never been more pressing. As well as the direct individual benefits, employee wellbeing has been linked to higher productivity, through improvements in performance, reductions in absence and presenteeism costs, and improvements in creativity.

If a piece of machinery or a new patented process promised all those improvements, it would be a sell-out success. Yet managers see barriers to working on wellbeing – especially if it involves making many small incremental actions, rather than purchasing a product or service. I wanted to understand these barriers and try to learn from businesses that were overcoming them. It was a small project – involving just 24 organisations across Norfolk and Suffolk – but in reaching out to large and small engineering, manufacturing and other heavier industries it reached into workplaces where health and safety is paramount, but the idea of employee wellbeing is still a relative newcomer.

I identified five key challenges from my discussions with managers on how to promote employee wellbeing: Finding and investing the time required to work on the fundamentals of communication, management and job design; Knowing how to vision and plan for employee wellbeing; Understanding the workforce; Learning how to manage people; and Changing organisational culture.

BEYOND FREE BANANAS FEATURE



For the organisations who were doing little on wellbeing, the main challenge seemed to be finding and investing the time required to think clearly about this issue. All of the following challenges stemmed from this.

It was not uncommon for managers to have a limited overview of how many of their organisation's existing activities related to wellbeing. They were sometimes surprised how much they were already doing when we talked. The trouble arose in scattergun approaches, which made the organisation seem busy on wellbeing, without any evidence of positive ongoing impact. Managers admitted looking for easy-to-deliver options, rather than activities they believed would make the most difference. They also questioned where to turn to get their 'accidental' managers (promoted on technical skills, rather than people skills) trained and ready for their management roles.

In contrast, the organisations who were doing a lot on the basics of employee wellbeing - particularly around training managers and fostering good communication - focused on the importance of their organisational values in guiding their use of time and focus. They talked about fostering an 'open door culture'. They described their attempts to experiment, try new things and learn. The pioneers in this area were no less busy, financially constrained or on average larger than those who were less active. But instead of focussing on lack of time, they started from 'what does our organisation value?' and allocated time on that basis.

Perhaps one of the most convincing reasons why some organisations find tackling employee wellbeing challenging is that being genuinely interested in the employee experience is a transformative process. It requires changes in culture and management style, sustained over time. Realising this and believing it to be important could be the key difference between an

organisation that embraces employee wellbeing and reaps the performance improvements and one that does not.

The privilege of taking research findings out into the community is the joy of gaining immediate feedback and comment. Two particular comments have stayed with me. One highlights the challenge to overcome, the other the simplest understanding of what needs to be done.

"So, it's just like with a boyfriend, then?" asked a workshop participant. I'd just finished running through the ways research suggests organisations can promote employee wellbeing, so I didn't immediately see the connection. Luckily, she continued: "He can bring you roses and take you to Paris, but that doesn't make a good relationship if he doesn't respect you. Just like a business can put on a wellbeing day, but still treat you badly the rest of the year."

Workplace wellbeing relies on the fundamentals of communication, relationshipbuilding and valuing people. While there are obvious differences between friendly, romantic and working relationships, her admirably succinct explanation summarised the point I'd just been making for 10 minutes. I asked if I could use it again. She agreed.

The other comment was just as enlightening. "We just want you to fire a magic bullet and make our lives better!" laughed one of my participants at the end of a frank group discussion about issues of workplace wellbeing in engineering and manufacturing. This was a joke - we all knew it. But there was also a hint of truth in the plea for an easy solution.

Human interaction is messy and relationships can be hard - whether between friends, partners, co-workers or a business and its employees. The organisations that are making progress on employee wellbeing recognise this complexity. They work incrementally and systematically on training managers and providing high-quality conditions and opportunities that value people and their contributions. Yet workplace wellbeing is not just down to pioneering businesses. Job quality depends on everything from national policy on workers' rights and conditions, down to the attitude of each supervisor on the shop floor. So, let's look beyond free bananas and work systematically on making our workplaces better for all.

To download a copy of 'Where are you on the workplace wellbeing journey?, a summary of the findings of this research, go to: www.uea.ac.uk/esi/people and click on Dr Helen Fitzhugh's profile to find a link to the PDF. To download findings summaries on workplace wellbeing topics and

the information sheet 'Why invest in employee wellbeing?', go to: whatworkswellbeing.org/our-work/work *Contact* Dr Helen Fitzhugh, Norwich Business School,

University of East Anglia Telephone 01603 593014 Email h.fitzhugh@uea.ac.uk

AUTUMN 2018 SOCIETY NOW 19

THE UK BY NUMBERS GREEN ISSUES

We present an at-a-glance overview of key topics. This issue's focus is on green issues including energy, finance, recycling, transport and climate change. Statistics are from Defra, the Department for Business, Energy and Industrial Strategy, the Green Finance Initiative, the Society of Motor Manufacturers and Traders, ONS and the Department for Transport

\$20bn Green bonds listed on the London Stock Exchange have raised in excess of \$20.2 billion in seven

currencies.

30% In the UK renewables generation has increased by 30% since 2014.

121

UK energy projects have been funded via crowdfunding raising €118 in total across five energy crowdfunding platforms.

98 The UK Green Investment Bank has backed 98 green infrastructure projects,

infrastructure projects, committing £3.4 billion to the UK's green economy worth £12 billion.

\$10bn There are 38 green

companies which have raised \$10 billion combined in London, including 14 renewable investment funds.

6**100**bn

Investment in the UK's clean energy sector, representing 12.6% of all new investment in clean energy for the EMEA region.

The UK recycling rate for waste from households was 45.2% in 2016, increasing from 44.6% in 2015. There is an EU target for the UK to recycle at least 50% of household waste by 2020.



UK biodegradable municipal waste (BMW) sent to landfill in 2016 was similar to that in 2015,



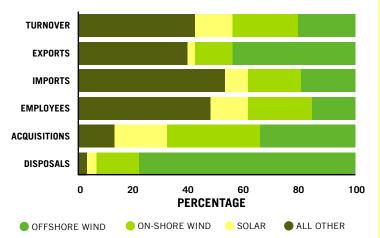
The UK is therefore still on track to meet the EU target to restrict BMW landfilled to 35% of the 1995 baseline by 2020. In 2016, 71.4% of UK packaging waste was either recycled or recovered compared to 64.7% in 2015. This exceeds the EU target to recycle or recover at least 60% of packaging waste.



ESTIMATE OF DIRECT AND INDIRECT TURNOVER (£THOUSANDS) IN LOW-CARBON AND RENEWABLE ENERGY ECONOMY, UK 2015 AND 2016

		2015		2016			
	DIRECT	INDIRECT	TOTAL	DIRECT	INDIRECT	TOTAL	% CHANGE IN Total 2015 - 2016
UK	40,532,000	33,615,000	74,147,000	42,559,000	34,830,500	77,390,000	4.4
ENGLAND	32,519,500	26,536,000	59,055,500	33,423,000	26,893,500	60,316,500	2.1
SCOTLAND	5,349,000	4,982,500	10,331,500	5,761,000	5,239,000	11,000,500	6.5
WALES	1,771,000	1,362,000	3,133,000	2,433,500	1,959,500	4,393,000	40.2
NORTHERN IRELAND	892,000	734,000	1,626,500	928,000	722,500	1,650,500	1.5

CONTRIBUTION OF THE SOLAR AND WIND SECTORS TO THE RENEWABLE ENERGY GROUP, UK 2016



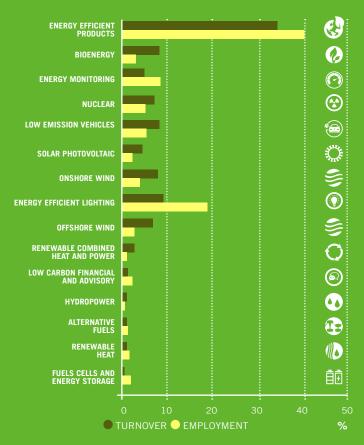
The UK low-carbon and renewable energy (LCRE) economy grew by 5% to £42.6 billion in 2016, from £40.5 billion in 2015; it continued to account for around 1% of total UK non-financial turnover.

Turnover in the solar sector in the UK fell from £3.1 billion in 2015 to £2.0 billion in 2016; over 85% of UK turnover in the solar sector relates to activity in England.

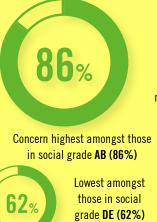


Exports related to the low emission vehicles sector were £2.2 billion in 2016, representing 60% of all UK LCRE exports.

PROPORTION OF UK LOW-CARBON AND RENEWABLE ENERGY ECONOMY TURNOVER AND EMPLOYMENT BY SECTOR, 2016



LEVELS OF CONCERN OVER CLIMATE CHANGE



Only one in 10 (10%) believe climate change is mainly down to natural processes.









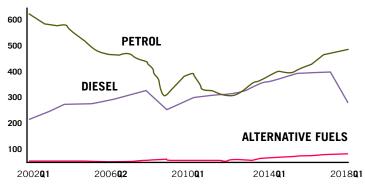
During 2018 Q1, over 15,300 new ultra low-emission vehicles (ULEVs) were registered in the UK, an increase of 11% on 2017 Q1. ULEVs made up 1.8% of all new registrations.

ELECTRIC VEHICLE AND ALTERNATIVELY FUELLED VEHICLE REGISTRATIONS JUNE

VEHICLE Category	JUNE 2018	JUNE 2017	% Change	% YTD Change
PLUG-IN / PURE ELECTRIC	1,519	1, 466	3.6	-3.3
PLUG-IN / OTHER VEHICLE	4,753	3,094	53.6	39.6
HYBRID / PETROL-ELECTRIC	9,242	6,107	51.3	24.1
HYBRID / DIESEL-ELECTRIC	32	52	-38.5	-38.9
CARS ELIGIBLE FOR The Plug-in Car grant	5,573	4,022	38.6	27.7
TOTAL NEW CARS REGISTERED	234,945	243,454	-3.5	-6.3

NEWLY REGISTERED CARS BY PROPULSION TYPE, GREAT BRITAIN 2002 Q1 TO 2018 Q1

THOUSANDS OF NEWLY REGISTERED CARS



QUARTER

Altering images

Professor Nigel Gilbert looks at the current perceptions of engineers and engineering in the UK and explains the contribution that the social sciences can make to our understanding of engineering and manufacturing as vital parts of the UK economy. By **Martin Ince**

IGEL GILBERT is a professor of sociology, with a specialism in computer modelling and simulation. Unusually, he is also an engineer, having made the transition from technology to the sociology of science as a PhD student. So he is uniquely well-placed to observe the UK's current Year of Engineering, and in particular the contribution that the social sciences can make to our understanding of engineering and manufacturing as vital parts of the UK economy.

Now head of the dozen-strong Centre for Research in Social Simulation at the University of Surrey, Gilbert comes from what he terms a "scientific family," and wrote computer programs while still at school. He then took a degree in engineering, because "there were no computer science degrees on offer at any British university at that time." The course included a segment on management, with lectures on organisational sociology, and it was these that inspired him to become a full-time social scientist.

His research since then has made the most of the growing power of information technology

Linking engineering to the social sciences



In Gilbert's opinion, social scientists have more than most to gain from a closer link to engineering. He says: "The best engineers are sympathetic to the social sciences and are well aware that they need to understand the social impacts and social contexts of what they are doing." Gilbert points out that the social sciences need to know more about

engineering and manufacturing, which he identifies as a key area for future ESRC support. He says: "With research council funding coming from the UK Industrial Strategy Challenge Fund, it is inevitable that research here will be a priority. At present, Science and Technology Studies (STS) tend to be aimed more towards science, with less emphasis on engineering and manufacturing."

In fact, he adds, engineering is a fascinating area for social science research. "Engineering covers the whole spectrum from new medical devices to software and systems, as well as some things you might expect such as bridge-building."

Indeed, he sees scope for the direction of travel he took from engineering to the social sciences to become a two-way street. "My business card says that I am a FREng [a Fellow of the Royal Academy of Engineering, the elite UK body for the profession] as well as being a professor of sociology. It would be good if more FBAs [Fellows of the British Academy, the equivalent body for the social sciences and the humanities] were professors of engineering." systems. One of his early ideas was to write software for the then novel microcomputer which allowed social security claimants to calculate their benefit entitlements. More recently, his work has concentrated on the application of IT to the modelling of social science problems. The models he has built allow social theories

Social scientists have more than most to gain from a closer link to engineering

to be tested without the ethical issues that arise when experiments are done with real people and communities, and have been adopted in government and elsewhere. One sign of their success is his role as director of the Centre for the Evaluation of Complexity Across the Nexus (CECAN), launched in 2016 to apply innovative methods to the evaluation of public policies in energy, environment and food. ESRC is among its principal funders.

Asked about his own favourite finding from the social sciences, Gilbert names "path dependency" as a vital consideration for industry and government alike. He explains: "Path dependency is really just the idea that what happened in the past affects what's possible for the future. People tend to ignore this truth and think that they have a blank slate for their future decisions. Social science can help here by being less focused on describing the present, and taking up the challenge of analysing how and why society changes through time." The kind of models and simulations that Gilbert and his colleagues build are one way of doing this.

Given Gilbert's long experience of studying change in social and business organisations, does he think that 'Years' such as this Year of Engineering do any good? In his view, they might. As he sees it, "they provide justification for people to do things they would not do otherwise," putting a "stamp of approval" on novel activities. In this case, the key task is "to get engineering better recognised in society." This is a big task and it is unreasonable to expect it to be complete in twelve months, but the Year of Engineering is still a valuable initiative.

Gilbert feels that engineering and engineers in the UK suffer from a lack of respect that would not be found in other countries. "The confusion arises because in Britain, an engineer is the person who comes to repair your washing machine," he says.





People cannot tell a technician from a graduate professional. And people often don't understand that the engineering profession has a new shape. It involves clean, intellectually demanding work, often leading to significant benefits for society. The public image of a mechanical engineer might not suggest an interesting, well-paid job, but in fact it is.

Gilbert is especially keen on the emphasis which the Year's planning puts on activities for young people. The father of small children, he is impressed with some of the ways they can now find out about technology, for example via the BBC's CBeebies network. But he sees scope for television

Gilbert feels that engineering and engineers in the UK suffer from a lack of respect

to be an even more positive influence. "TV crime series once caused a huge increase in university applications for forensic psychology courses," he points out. "Something similar needs to be done for engineering." In his experience, engineering students tend to be people who made things as children, and who may have been keen on Lego and Meccano. It is too rare, he thinks, for older children to get the idea that engineering might be a fascinating career.

He is clear too that efforts to bring young people into engineering need a stronger focus on women. Right now, the profession has far too few. Through the Global Challenges Research Fund, which Professor Gilbert is clear that efforts to bring young people into engineering need a stronger focus on women. supports research into key development issues, Gilbert is involved in work on the social effect of dams in developing nations. He is alarmed at "just how male" the meetings he attends usually are.

There is also competition for talent, especially at the university entrance stage, between engineering and science subjects. While they both call for similar educational competence, science can seem more exciting, touching on everything from black holes to dinosaurs. But Gilbert thinks that engineering can more than match science for excitement. "The engineering students here at Surrey build and race sports cars and get involved in spaceflight projects," he points out.

The problem of attracting young people into engineering may, of course, become more central after Brexit, if the UK is forced to develop its own talent instead of importing it. Gilbert agrees that internationally-mobile professionals may find Britain a less attractive venue in future years. He is keen for the UK to remain within an open market for talent, pointing out that like other UK universities, Surrey educates a good number of Chinese engineers. "Open borders are a positive thing, but whether they will remain a reality is a big if."

The Centre for the Evaluation of Complexity Across the Nexus (CECAN) is a £3-million research centre hosted by the University of Surrey working on transforming the practice of policy evaluation in Nexus areas, to make it fit for a complex world. *Email* n.gilbert@surrey.ac.uk *Web* www.cecan.ac.uk



The ESRC Festival of Social Science is a unique, week-long celebration of the social sciences with over 300 topical events taking place across the UK – all free.

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Improving eyewitness testimony

Eyewitnesses to serious crimes can provide valuable evidence, but the way that evidence is collected and used needs much improvement, says **Professor Laura Mickes**

RIME RATES ACROSS the UK are on the rise with knife and acid attacks featured prominently and regularly in the news. Eyewitnesses to these crimes can provide valuable evidence, but the way that evidence is collected and used needs much improvement. Cognitive psychology has had a lot to say about memory in general and the potential pitfalls of memory as an accurate recording of items and events, especially memory for faces. Fortunately, the solutions are simple and inexpensive.

Eyewitnesses to crimes are often asked to try to identify the perpetrator out of a police identity parade, (also commonly known as a lineup). Eyewitnesses are invited to a police identification suite. They are instructed that they will view a series of videos of people (labelled with the number of the position in the parade) one at a time, and they should not make their response until after they have seen everyone twice. They are informed that the person who committed the crime 'may or may not be in the parade'. After viewing the parade, they then say the number of the person they saw or say that they did not see the perpetrator in the parade. If they did pick someone, it is either a stooge (known innocents) or the suspect. If it's the stooge, then nothing happens because the person is known to be innocent. If the suspect is picked, then that provides evidence against that person. It's good news if that person is actually guilty. But it's bad news if that person is actually innocent.



Consider a hypothetical case of an innocent suspect, we'll call James, who is identified from a parade by an eyewitness. Based on that evidence, James is further investigated, charged, and found guilty in a court of law (largely based on the testimony of the eyewitness). He then is imprisoned. What is the cost of this error? It turns out that it's not a number that is at our fingertips because it includes personal, societal, reputational, and financial costs. We can try to estimate it.

Imagine if the eyewitness was allowed to express how confident they were in their identification

Let's start with the investigation. An attending officer, crime scene investigators, an investigating officer, an ID officer, and their supervisors are all involved in the investigation, which takes on average 55 days from the commission of a crime to the charge of a suspect. The average salary for a police officer is about $f_{31,000}$ per year. To assess the total costs associated with the investigation would require knowing how much time each officer spent during the course of the investigation. But you get the point: Salary costs and resources quite quickly and substantially add up during this process.

Let's next head to the court of law. According to the Crown Prosecution Service, the cost of one committal for trial at the Crown Court is £3,500.

Moving on to prison, the yearly cost of housing a prisoner is £35,000. And let's say James is imprisoned for 15 years (the average time those who have been exonerated are imprisoned). That's a total of £525,000 (not accounting for inflation).

If James is fortunate enough to be exonerated and if he can provide evidence that there was a miscarriage of justice (that is, if he can prove his innocence), he may receive an ex gratia payment or compensation. The maximum compensation amount is $\pounds_{I,000,000}$ for those imprisoned for 10 years or more.

Once exonerated, it's back to the drawing board for the police investigators. They must re-open the case which requires repeating the investigative process.

And all the while, the real perpetrator has been free to victimise more people.

The cost of the emotional fallout is immeasurable. For James, he is at risk of poverty

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due, in part, to reputational damage and years of lost wages. Chances are high that his relationships with his family and friends will have dissolved. All of this leads to mental health issues, such as depression, anxiety, drug dependence, etc. It doesn't stop with James and his loved ones. All involved are affected to some degree. How does that eyewitness feel about identifying the wrong person? How do the police investigators feel about investigating and charging the wrong person? How does the prosecution, judge, and jurors feel about sending the wrong person away? How do society members feel about the integrity of the criminal justice system?

That's a grim scenario. There is no way to know how many innocent people are wrongfully imprisoned but, according to the Innocence Project in the US, of those who have been exonerated by DNA evidence, eyewitness evidence played a role in over 70% of the cases. Can we reduce it? Research suggests that the answer is yes.

Consider now going back to the identification suite. Imagine if the eyewitness was allowed to express how confident they were in their identification of James. In this hypothetical scenario, James would have been identified with low confidence. Knowing and appreciating that information potentially could have saved James 15 plus years of turmoil and the taxpayers well over \pounds 500,000 for just this one case (not including the \pounds 1,000,000 compensation).

When we express low confidence in a memory, we are effectively saying that there's a good chance we're not right. By ignoring this information, we may solve cases faster, but we're creating greater chances for errors – for sending the wrong people away for crimes that they did not commit. It doesn't When we express low confidence in a memory, we are effectively saying that there's a good chance we're not right. mean that the police need to stop investigating that person, but they need much more evidence and to keep pursuing other suspects.

On the other hand, when we express high confidence in a memory, the accuracy of that memory is usually high. If an eyewitness expresses high confidence in an identification, the police can have more certainty that their suspect is guilty and continue to find more evidence to support that case.

The value of confidence is one of the conclusions drawn by the ESRC-funded project 'Investigating New Ways to Improve Eyewitness Identifications Using Receiver Operating Characteristic Analysis.' Importantly, it is only during the initial identification procedure where confidence tells us anything about accuracy. It loses diagnostic value months later in the court of law. Therefore, judges and jurors should be shown the videoed identification procedure and use that evidence to help make their decision about the defendant's culpability. At trial it is too late, and all the forces that contort memory have been at play in the months between the time at the identification suite and the court case.

So, the easy and inexpensive solution is for the police to collect expressions of confidence at the initial identification procedure and for the courts to use it. Not only is this change negligible in cost, it has great potential to drastically reduce costs of a false identification.

Laura Mickes is a Professor in the Department of Psychology at Royal Holloway, University of London. She also holds a Visiting Scholar appointment in the Department of Psychology at the University of California, San Diego. *Telephone* 01784 443711 *Email* laura.mickes@rhul.ac.uk

Ready for school?

Large numbers of children arrive at school without the skills they need to succeed. **Helen Victoria Smith** says practices and policies need to change to ensure all children have a positive start to school and all parents feel empowered to support their children's learning

AKING SURE CHILDREN have the right opportunities for learning and development in their earliest years so they can be 'school-ready' has been a key part of successive UK governments' approaches to raising educational achievement and promoting economic progress. But concerns around large numbers of children arriving at school without the skills they need to succeed have been steadily growing. These have been exacerbated by government data which show a persistent attainment gap between poorer children and their better-off peers. At the same time, government policy has promoted the idea that parents who provide the right sort of homelearning environment significantly influence their children's 'school readiness'.

An institutional approach to early education was promoted over more informal learning

In this context, my research revealed how mothers of children under five and early years' professionals understood the concept of 'school readiness' and how this shaped what they did. A key finding was that the way support was offered to and experienced by mothers was different depending on the places they went. As a result, children from particular families were less likely to achieve the 'school readiness' required for academic success.

Data were collected as part of a larger PhD ethnographic study that set out to explore how mothers used and experienced the resources provided by a small town in the East Midlands to support their children's literacy development. National and local statistics characterised the town as suffering from considerable economic and educational deprivation. Various settings were explored: Sure Start Children's Centres; private parent and child classes; the public library; and preschools.

The professionals working in the Children's Centres talked about how children from families (particularly those living in one of the two social housing estates) were not 'school-ready'. They painted a picture of children starting school in nappies, unable to use a knife and fork, and with a dummy. They blamed this on parents for putting children in front of the television from a very young age, giving them dummies, and not talking or reading to them.

These views shaped the way support was offered to parents who were seen to be 'deficient' and lacking in knowledge. They were likely to be identified by a professional such as a midwife, health visitor or social worker as 'in need of support' and then referred to the Sure Start Children's Centres where they were offered a 'pathway' of courses designed to teach them the skills and knowledge they were seen to lack.

Professionals taught them how their child's learning and development related to the different areas of learning in the Early Years Foundation Stage Framework and mothers were given a 'learning journey' to complete with photographs of their child engaging in activities related to the different areas of learning, or as evidence that they had reached a particular milestone. This was also formally tracked and kept on record, so if a child was failing to meet a particular milestone extra support could be put in place.

This practice enabled the professionals to indirectly monitor how well mothers were learning the lessons they were being taught and meant that the professionals decided what support could and should be offered. Instruction for the mothers usually took place away from the children, who were looked after in a crèche. Mothers, rather than the children, were made the focus of teaching.

However, many of the groups suffered from low attendance figures, and those who turned up often fell away before the course was finished. Professionals expressed concern that they were not always able to engage the mothers whom they felt would benefit most. But professionals from other settings and some mothers felt that by targeting and labelling families as 'vulnerable' and 'in need' of support, a stigma has now grown around the use of Children's Centres with families not wanting to be identified in this way.

Additionally, some mothers did not subscribe to the idea that they needed to be 'taught' a lesson. One mother commented that the professional who ran her group was too 'school-mistressy' and that the sessions were like being at school. It appeared that the way support was offered in the Children's Centres alienated parents and had no direct benefit to their children.

Despite the emphasis on the importance of parents in getting their children 'school-ready', the 'pathway' of courses stopped once children turned



two as it was expected that a preschool would step in at this point. Professionals in the Children's Centres frequently encouraged and reminded mothers to apply for childcare funding as they felt their children would benefit from going to preschool as early as possible. Thus an institutional approach to early education was promoted over the more informal learning that could be supported in the home and gave mothers mixed messages: On the one hand mothers were taught to take responsibility for getting their child 'school-ready'. On the other hand, it seemed their role was less important once their child was enrolled in preschool. Mothers that had attended groups at the Children's Centres commented that they saw the childcare professionals as 'experts' who knew more about how to support their child's learning, so once their child was enrolled in preschool they didn't feel they needed to do much.

In contrast, mothers who visited the public library and/or private parent and child classes were offered support very differently. Unlike in the Children's Centres, children, not mothers, were the focus. Instead of being separated from each other, they were encouraged to interact and experience what was on offer together. Activities such as singing, moving and using different props were modelled by the professionals and designed to engage the children, enhance their learning and increase their 'school readiness'. Mothers were not given specific tasks to do or asked questions to check their understanding or to find out what they Mothers were taught to take responsibility for getting their child 'school-ready' but it seemed their role was less important once their child was enrolled in preschool. did at home with their child. Monitoring their or their child's performance was of little concern.

Professionals worked on the assumption that mothers already recognised some of the benefits for their children's learning. In addition it was hoped that, through taking part and having the activities modelled to them, they would pick up ideas about how to help their child's development at home.

My research showed that the mothers in these settings did continue similar activities at home. Rather than seeing the 'experts' as solely responsible for getting their child ready for school, mothers in these settings were also more likely to continue supporting their child's learning once they were enrolled in a preschool. In this way, their children were more likely to achieve the 'school readiness' seen as necessary for educational achievement.

Practices and policies need to change to ensure all children have a positive start to school and all parents feel empowered to support their children's learning. I hope that my research will help policymakers and service providers to organise community resources more equitably so that young children can encounter a more level playing field when they start school and achieve educational success.

i Contact Helen Victoria Smith, Assistant Professor (Primary Education), University of Nottingham *Telephone* 0115 951 4449 *Email* helen.smith5@nottingham.ac.uk *Web* www.nottingham.ac.uk/Education/People/helen.smith5

A matter of choice

New research shows that although elite university degrees are more academically and socially selective in their intake of students than degrees from non-elite universities, which subject you study matters more for increasing earnings

HOOSING THE RIGHT field of study is more important than attending an elite university for those aiming to become a top earner by middle age, according to new findings from the UCL Institute of Education.

Researchers analysed data on more than 6,000 people born in England and Wales in a single week in 1970, who are taking part in the 1970 British Cohort Study.

The research looked at who made it into the top five per cent of earners at age 42 –those on salaries of around \pounds 80,000 or more. They found that, after taking into account a wide range of factors, including school level educational attainment, childhood cognitive scores and social background, there were clear differences in the advantage gained from degrees in different subjects and from different institutions.

Those who took LEM subjects at a non-elite university still fared very well

Degrees in Law, Economics and Management (LEM) were the most likely to lead to top salaries. A LEM degree from an elite university was the most rewarding of all, with graduates having a 6.5 times greater chance of joining the top five per cent of earners compared to non-graduates. But those who took LEM subjects at a non-elite university still fared very well – they were 4.5 times more likely to become top earners than those without a degree.

In comparison, those who studied Science, Technology, Engineering and Maths subjects at both elite and normal universities had three times the odds, and those who took an Other Social Science, Arts and Humanities (OSSAH) degree at an elite university were 2.6 times more likely to be top earners at age 42. OSSAH degrees from nonelite universities were the least lucrative.

Professor Alice Sullivan, the study's lead author, said: "Since the beginning of the 1990s, incomes at the very top of British society have drawn further away from the rest of the population. Our study provides new evidence on the role of higher education as a conduit to the most well-paid jobs.

"As higher proportions of the population gain a university degree, we expect advantaged groups to maintain their competitive edge by seeking high status degrees at elite universities. Although elite university degrees are far more academically and socially selective in terms of their intake of students than degrees from non-elite universities, which subject you study matters more for increasing earnings when you compare individuals who had similar exam results and cognitive scores pre-university."

Women were much less likely than men to be top earners at age 42, even though roughly the same proportion gained degrees, and enjoyed similar levels of educational attainment. Women had a third of the chance of gaining a top salary compared to men, and made up less than a quarter (24%) of the top five per cent of earners.

The research also revealed that those who attended fee-paying schools had a much greater chance of being top earners in middle age. Although only six per cent of the people included in this analysis had a private education, they made up a quarter of the highest earners at 42. Former private school pupils were 1.7 times more likely to be top earners, and those who attended the most exclusive fee-paying schools had almost three times the odds of a top salary compared to those who attended state schools who had similar school results and cognitive scores.

"From a policy perspective, it is natural to ask what these findings mean for young people entering higher education today," said Professor Sullivan. "The 1970 cohort enjoyed free university education and student grants, whereas current students often leave university with considerable debts. They are therefore likely to be more concerned about their future earnings.

"Much attention has been given to promoting access to elite universities for young people from less advantaged backgrounds, but our findings suggest that promoting access to the most lucrative fields of study may have more potential to widen access to high-salaried jobs. Although these findings could be used to denigrate degrees in the arts, humanities and social sciences, it is important to emphasise that people can prioritise values other than material gain, such as creativity and service to society. And, it should go without saying, the value to society of a graduate's education is not necessarily reflected in their income."

Contact **Professor Alice Sullivan, Institute of Education, University College London** *Telephone* **020 76126661** *Email* **alice.sullivan@ucl.ac.uk**



Inequality and the crime drop

Analysis of various datasets by the ESRC-funded Applied Quantitative Methods Network (AQMeN) research centre indicates that the significant fall in crime in Scotland has benefited some communities more than others, increasing inequality between areas

IKE MANY OTHER countries worldwide, Scotland saw a significant reduction in crime from the early 1990s onwards. Indeed, the number of crimes recorded by Scottish police fell by an incredible 60% between 1991 and 2016/17. A growing body of literature has focused on changing patterns of crime across different countries; however, crime impacts on people and places so it is imperative to understand how any changes impact at both those levels. Using a number of quantitative datasets and methodological approaches, the AQMeN research centre set out to examine whether there was a dark side to the crime drop in terms of an increase in inequality between those who experience crime and those who don't.

How has experience of victimisation in Scotland changed?

Falling crime is always portrayed as good news for society, but surely this is only the case if any reduction is experienced equally across the population. Analysing Scottish victim survey data from 1993 to 2014/15, the AQMeN team found that people could be grouped according to the frequency and type of crime they were likely to experience. Overall, the crime drop reflected a large reduction in people experiencing sporadic or one-off incidents of crime, mainly a property crime such as car theft or burglary. There was also some reduction in the likelihood of people experiencing low-level repeat victimisation of various types. But there was no significant change in people experiencing frequent victimisation, which included a high risk of violence. In other words, the crime drop in Scotland mostly benefited those people who were at least risk of victimisation while, for those at higher risk, the threat of crime remained stubbornly persistent. Looking at the characteristics of these frequent victims, the evidence suggests that they were more likely to be from socially disadvantaged and vulnerable households.

A similar story emerged when looking at Scottish communities. Greater Glasgow is an area of Scotland that has historically been plagued by high crime rates. Modelling police-recorded crime data over a 14-year period, AQMeN researchers found that crime had fallen by around 40% on average. But some communities had benefited more than others. While crime had fallen within very high crime communities, the scale of the drop was far less than for many communities that already experienced low levels of crime. As with victims of crime, therefore, the communities that were most blighted by crime had benefited less from falling crime than other neighbourhoods that were already safer for residents. These findings are important because there has been very little research internationally on the impact of the crime drop at a local level.

So, the evidence from the AQMeN research highlights a dark side to the crime drop – an increase in inequality between those people and places that experience crime and those that don't. Has Scotland fared better than other parts of the UK?

Recorded crime in England, Wales and Northern Ireland also declined during the last three decades, albeit to a lesser extent than in Scotland (although it is difficult to make direct comparisons due to differences in crime recording rules and practices). However, it is the recent trends in violence and knife-related crime that has drawn the attention of policymakers and criminal justice practitioners to two very specific locations: Glasgow and London. The very high number of knife-related murders in London since the start of 2018 has been contrasted with the exceptionally low homicide rate in Glasgow, which was once famously dubbed 'the murder capital of Western Europe'. There has been significant speculation about Scottish exceptionalism in the way that Glasgow has dealt with its violent gang problem, predominantly through the work of the Violence Reduction Unit; however, there has been very little research on the topic.

Communities that were most blighted by crime had benefited less from falling crime

Using police-recorded crime data for Local Authorities in the previously-named Strathclyde Police Force area (which includes Greater Glasgow) and the Metropolitan Police Force area (which includes City of London) between 2004/5 and 2015/16, the AQMeN team found stark differences in violence trends. In the Strathclyde police force area the local authorities showed a consistent downward trend in violence across the whole time period (with some increase at the beginning of the period for two local authorities). Whereas, for all of the local authorities in the Metropolitan Police Force area violence fell at the start of the period, and then started to increase again (mainly around 2012/13).



The importance of people and place

AQMeN's research findings demonstrate the value of conducting analysis that recognises the interplay between people and place in shaping social problems and inequalities. A good example of this is the existence and impact of 'social frontiers'. Social frontiers occur when there is a sharp contrast between neighbouring areas in the social, ethnic or religious composition of residents. These abrupt transitions can be visualised as 'cliff edges' in the social geography of residential location.

These cliff edges contrast with the more gradual blending of social groups across residential neighbourhoods. When adjacent neighbourhoods display these abrupt transitions it implies that noone wants to live at the frontier between groups. Social frontiers may therefore indicate significant underlying tension between communities. In principle, these underlying tensions increase the risk of anti-social behaviour and violent crime. Social frontiers also imply a shortage of 'bridgebuilders' - ie, households willing to live on the other side of the frontier, providing vital links between otherwise isolated social networks. These bridge builders help defuse misunderstandings, and can provide vital links between otherwise disconnected communities. Without them, tensions can escalate and communities drift apart.

The AQMeN team developed a method for detecting these social frontiers and tested whether there was evidence of a link with crime. They found that neighbourhoods joined by social frontiers in The number of crimes recorded by Scottish police fell by an incredible 60% between 1991 and 2016/17. Sheffield did indeed have significantly higher rates of crime, including violent crime, burglary and vehicle crime. The team are currently exploring whether this link between social frontiers and crime is replicated in other cities across Europe. If the relationship holds true it potentially has significant implications for tackling crime because it suggests that some inequalities in crime can only be resolved by tackling issues of social cohesion.

What's next for understanding inequalities in Scotland?

The AQMeN researchers are continuing to explore this interplay between crime, people and place in a new ESRC-funded project called 'Understanding Inequalities'. This project looks at the causes and consequences of multiple inequalities in Scotland, with a particular focus on housing, changing ethnic mix, educational attainment and life outcomes, spatial analysis of neighbourhoods, crime and victimisation, youth crime and community resilience in the face of inequalities. Understanding Inequalities brings together a team of researchers from across the UK, Europe and the US for this innovative and ambitious programme of research which aims to provide robust evidence to help inform and develop new policy solutions to tackle multiple forms of inequality.

i The Applied Quantitative Methods Network (AQMeN) was a research centre funded by ESRC 2013-2017. To find out more visit: www.research.aqmen.ac.uk Twitter: @U_Inequalities

Making an impact

This year's Celebrating Impact Prize competition encompassed research across a wide range of areas, nationally and internationally. The prize celebrates ESRC-funded researchers that have achieved outstanding impact on business, policy and society, in the UK and worldwide



ROFESSOR JENNIFER RUBIN, ESRC Executive Chair and chair of the Celebrating Impact Prize panel, said: "We were impressed with the sheer quality and diversity of the research by the winners of the Impact Prize this year. Their work is having real influence on some very important societal issues."

"Achieving impact in the social sciences is a very particular skill," said Sir Mark Walport, Chief Executive of UK Research and Innovation, when he opened the award event on 20 June. "When I was in the role of [Government] Chief Scientific Adviser, social science was often at least as important as biological science, engineering science, physical science. You have an extremely important role, and I think that these prizes are a very good stimulus.

"Ultimately, UK Research and Innovation is first of all about the creation of knowledge. If we are going to be able to innovate, if we are going to have new impacts, then we need new knowledge," he added. "But it is then about turning that knowledge into utility, and that may be economic utility, it may be cultural and social utility through all sorts of other ways – and that is what the finalists have contributed to."

The winners of the 2018 Celebrating Impact Prize are:

Outstanding Early Career Impact (in partnership with SAGE publishing)

Finalist: Mr Brett Heasman, London School of Economics and Political Science (LSE) Winner: Dr Abigail Dymond, University of Exeter Sir Mark Walport, Chief Executive of UK Research and Innovation, opened the Impact Prize award event. Dr Dymond's research led to a new national reporting system on the use of force for all 43 police forces in England and Wales, resulting in more transparent and safer policing. She was invited to work on the police Use of Force Reporting Review in England and Wales after her PhD research into Taser use in England and Wales. Nine of Dr Dymond's 10 recommendations were accepted in part or in full. She has also



been working alongside the UN Subcommittee for the Prevention of Torture on the production of a Practical Manual for monitoring the use of weapons and restraints in places of detention. **Outstanding Impact in Business and Enterprise Winner: Dr Denise Baden, University of Southampton**





Dr Baden's work in introducing sustainable practices in the service sector has led to a reduction in hair care salons' carbon footprint and running costs. As part of the project, Dr Baden developed a virtual salon training programme and associated sustainable stylist/salon certification. She has shaped the sustainability component of the national occupational standards that form the basis of training for the UK's 14,000 hairdressing apprentices. The global eco-hair company Davines has developed a training scheme based on Dr Baden's certification for salons in the 85 countries that stock its products.

Outstanding International Impact Winner: Professor Kevin Bales, University of Nottingham



Professor Bales' research has advanced a new tool for estimating the true extent of modern slavery and trafficking across the world. His adaptation of the Multiple Systems Estimation (MSE) technique, first pioneered for slavery with Sir Bernard Silverman in 2014 for the UK, is helping to provide the first reliable estimates of modern slavery. National and global slavery estimates, including Walk Free's Global Slavery Index on which Professor Bales collaborates, are the baseline against which the United Nations can measure progress towards its Sustainable Development Goal of ending slavery by 2030. His ESRC/AHRC-funded work has enabled him to carry out further applications of MSE, particularly in a regional US context.

Outstanding Impact in Public Policy Finalists: Dr John Drury, University of Sussex, and Dr Toby James, University of East Anglia Winner: Dr Abigail Adams, University of Oxford

Research by Dr Adams was instrumental in advocates' cases for the Supreme Court's removal of employment tribunal fees. Through a novel analysis based on economic and legal expertise, Dr Adams showed that the cost of bringing a claim outweighed the potential benefit in many cases. The research findings were published in *Modern Law Review* and the article was highlighted as a contribution to the Supreme Court verdict in a House of Commons research briefing. Dr



Adams has collaborated with the United Nations' International Labour Organization to look at using the model to evaluate the impact of similar reforms worldwide, starting in Brazil.



Outstanding Impact in Society Finalists: Professor Penny Green, Dr Thomas MacManus, Ms Alicia de la Cour Venning, Queen Mary University of London Winner: Professor Emma Renold, Cardiff University

Relationships and sexuality education in Wales has been transformed thanks to Professor Renold's participatory research with children and young



Professor Jennifer Rubin, ESRC Executive Chair and chair of the Impact Prize panel: "We were impressed with the sheer quality and diversity of the research by the winners of the Impact Prize this year." people. The toolkit AGENDA has been embedded into practice by key organisations that deliver Sex and Relationships Education (SRE) across Wales – reaching more than 3,000 people including young people, practitioners, youth workers, police liaison officers, teachers and academics. Her findings were extensively cited by the Welsh Government in passing the Violence Against Women, Domestic Abuse and Sexual Violence Act. Professor Renold chaired the Cabinet Secretary for Education's expert panel on the future of SRE in Wales, whose findings and recommendations are changing the SRE curriculum.

Ultimately, UK Research and Innovation is first of all about the creation of knowledge

Impact Champion Professor Matthew Flinders, University of Sheffield

Over the past decade, Professor Flinders' mission has been to help UK social science researchers to reach out beyond academia. He founded the Sir Bernard Crick Centre for the Public Understanding of Politics in 2013 and has developed professional training courses, including the Crick Centre training course that has supported more than 200 academics



in engaging with politicians and Parliament. Working with the Political Studies Association, he established the Total Exposure competition to help social scientists pitch ideas for TV and radio documentaries. Professor Flinders also established the first undergraduate module to be accredited and co-taught by the Houses of Parliament, which has been rolled out to 20 UK universities.

More about the finalists and the Celebrating Impact Prize at: esrc.ukri.org/research/celebrating-impact-prize

News briefs

£900 MILLION FUTURE Leaders investment

Business Secretary Greg Clark has unveiled a major new £900-million investment in the UK Research and Innovation (UKRI) Future Leaders Fellowship Scheme.

The inaugural UKRI Future Leaders Fellowship Scheme will receive \pounds 900 million over the next II years, with six funding competitions and at least 550 fellows awarded over the next three years.

The investment will provide up to seven years of funding for early career researchers and innovators, including support for part-time awards and career breaks, providing flexibility to researchers to tackle ambitious and challenging research questions.

Business Secretary Greg Clark said: "We are a nation of innovators,

UNCONVENTIONAL Hydrocarbons in the UK Energy System

The Natural Environment Research Council (NERC) and the ESRC are pleased to announce the outcomes of the Unconventional Hydrocarbons in the UK Energy System: Environmental and socio-economic impacts and processes programme call for proposals.

This programme aims to provide an independent scientific evidence base to understand potential environmental and socioeconomic impacts of unconventional hydrocarbon extraction.

NERC and ESRC recognise that unconventional hydrocarbon extraction is a complex issue requiring a holistic approach, encompassing knowledge from both the environmental and social sciences. Seven multi-institution consortium projects will be funded and will start in summer 2018.

The projects will address five key programme challenges identified by NERC and ESRC:

Challenge 1: The evolving shale gas landscape

Assessing and monitoring the UK shale gas landscape (UKSGL)

with some of the world's greatest inventions created on British soil – from penicillin to the first computer programme. We want to retain our global reputation as a destination for world-class scientists and researchers, by providing opportunities to find and nurture the next Ada Lovelaces and Isaac Newtons."

"I want the UK to remain the goto destination for the best researchers and innovators and that is why we are investing in the rising stars of research and innovation to develop the new products and technologies of tomorrow."

Previous investment in new talent has funded research into new cancer drugs and developed critical technology which will bring us driverless cars. Today's announcement will build on this

Challenge 2: Shale resource potential, distribution, composition, mechanical and flow properties

An integrated assessment of UK shale resource distribution based on fundamental analyses of shale mechanical and fluid properties Challenge 3: Coupled processes from reservoir to surface

Impact of hydraulic fracturing in the overburden of shale resource plays: Process-based evaluation (SHAPE-UK) Challenge 4: Contaminant pathways and receptor impacts

Evaluation, quantification and identification of pathways and targets for the assessment of shale gas risk (EQUIPT4RISK)

Challenge 5: Socio-economic impacts

Understanding the spatial and temporal dynamics of public attitudes and community responses to shale gas: An integrated approach;

The social construction of unconventional gas extraction: Towards a greater understanding of socioeconomic impact of unconventional gas development;

'Fracking', framing and effective participation.

For more information, see: gotw.nerc.ac.uk/list_them.asp?them=Uncon+ Hydrocarbons&cookieConsent=A success and boost the pipeline of talent needed to build a Britain fit for the future. The money, part of the single biggest investment in science in 40 years, will help ensure the UK invests 2.4% of GDP in R&D by 2027 and becomes the most innovative economy by 2030.

Chief Executive of UK Research and Innovation, Professor Sir Mark Walport said:

"Talented people are the energy and engine of new knowledge, new ideas and new opportunities. The long-term investment announced today means the UK will continue to attract and grow the very best, supporting those who want to solve the most difficult questions whether they are in frontier science, our evolving society or our changing economy."

RESEARCH TEAMS TO STUDY Future of Canada-uk trade

The Social Sciences and Humanities Research Council (SSHRC) of Canada and the ESRC have awarded 10 Knowledge Synthesis Grants totalling over $f_{161,000}$ (over C\$280,000) to assess the state of research knowledge on Canada-UK trade relationships.

The competition supports projects led by researchers based in Canada and the UK working together to synthesise existing knowledge and identify research strengths.

The projects cover diverse issues, such as governance, inclusion, labour, the environment, and technological and digital transformations. The findings will help understand and enhance future trading relationships, and support evidence-based decisionmaking and policy development.

A July workshop in Ottawa, Canada, drew award -holders and key stakeholders from across the business, community and government sectors together to discuss the proposed projects and further cross-sectoral international connections.

A second workshop in London in December will focus on the findings and how they can help to strengthen Canada-UK trade relationships.

People

IN MEMORIAM Sir James Mirrlees

Sir James Mirrlees, Scottish economist and Nobel prizewinner, died on 29 August. He has been a figure of enormous importance both for the magnitude of his influence on the field of public policy analysis in general and more particularly for his role in the Institute for Fiscal Policy's (IFS) recent activities.

His work in microeconomics is world-renowned. During the 1960s and 1970s he worked on the theory of public economic policy which would eventually earn him the Nobel Prize in Economics in 1996 for his pathbreaking work on the economic theory of incentives under asymmetric information. His economic models, looking at 'moral hazard' and 'optimal income taxation', are standards taught in the discipline.

All of his work was motivated by a commitment to economic policy design as an instrument to the betterment of society. While his insights into fundamental theory have been unsurpassed, he has contributed also to practical advice on policy, notably through his role in chairing the Mirrlees Review – a major collaborative research venture led by the IFS. The Mirrlees Review brought together a high-profile group of international experts and early career researchers to identify the characteristics of a good tax system for any open developed economy in the 21st century.

Professor Geoff Whitty CBE

Geoff Whitty, economist and professor for equity in education died on 27 July. Over a long career, Professor Whitty held the prestigious Karl Mannheim Chair of Sociology of Education and was Director of the Institute of Education from 2000 to 2010. He directed ESRC-funded projects on the impact of education policies, such as the assisted places scheme, city technology colleges and changes in initial teacher education.

More recently he held a Research Professorship at Bath Spa University and a Global Innovation Chair at the University of Newcastle in Australia. He had an international reputation for research and scholarship in the fields of education policy and teacher education. ioelondonblog. wordpress.com/2018/07/29/geoff-whitty-anappreciation/

OU RESEARCHERS AWARDED For Impact on Society

Research which investigated how wearable monitoring technologies can contribute towards supporting active and healthy ageing, has won The Outstanding Impact of Research and Prosperity category in the OU Research Excellence Awards 2018.

The award was presented to Professor Shailey Minocha, OU Professor of Learning Technologies and Social Computing and her team.

The research programme was funded by the Sir Halley Stewart Trust and the ESRC Impact Acceleration Account. Professor Minocha and her team investigated whether, and how, wearable activity monitoring technologies can support active and healthy ageing, in self-monitoring and self-management of health, in alleviating social isolation and loneliness, and in caring. Examples of activity monitoring technologies tested include those from Samsung, Fitbit and Garmin. These devices help track activity, heart rate and sleep patterns.

SMART HANDPUMPS TEAM WINS INNOVATION AWARD

The Smart Handpumps initiative has won Oxford University's first Vice-Chancellor's Innovation Awards. Jointly funded by the ESRC and DFID, the initiative is an innovative technological response to water shortages and handpump service maintenance issues in Africa.

Led by Professor Robert Hope, Associate Professor at the School of Geography and the Environment, a multi-disciplinary team of academics created and installed an electronic device in the handpump's handle, which automatically alerts maintenance providers when remote sites are damaged or broken.

The innovation has made an important contribution to solving one of the major problems preventing safe access to water in many African countries. It led to improved maintenance of handpumps, reducing repair time from a month to a day in some cases, and allowing teams to know quickly if these repairs have been effective.

WILEY PRIZE IN ECONOMICS Awarded to associate Professor Mirko Draca

Associate Professor Mirko Draca was named by the British Academy and Wiley as the winner of this year's prize for his academic excellence in the field of economic history, especially for his work on the effect of Chinese imports.

Nominations can be for research in any field of economics or economic history, and are made by Heads of Department of Economics (or equivalent) in UK HEIS.

Mirko said: I'd like to thank the groups that have provided a really inspirational environment for me over the years: the Department of Economics and CAGE research centre at Warwick, the Centre for Economic Performance at the LSE, and the UCL Department of Economics. These groups have all made massive contributions to social science and public policy in the UK. In an era when the value of independent expertise is being aggressively challenged this type of research is more important than ever."

QUEEN'S BIRTHDAY Honours 2018

A number of prominent social scientists and economists have been honoured in this year's Queen's Birthday Honours list.

Commanders of the Order of the British Empire (CBE)

Paul Johnson, Director, Institute for Fiscal Studies. For services to the Social Sciences and Economics.

Professor Jonathan Haskel, Professor of Economics, Imperial College London. For services to Economics.

Members of the Order of the British Empire (MBE)

Professor Melinda Mills, Nuffield Professor of Sociology and Head of Department, University of Oxford. For services to the Social Sciences

PERFORMANCES OF INJUSTICE The politics of truth, justice and reconciliation in Kenya

Following unprecedented violence in 2007/8, Kenya introduced two classic transitional justice mechanisms: a truth commission and international criminal proceedings. Both are widely believed to have failed, but why? And what do their performances say about contemporary Kenya; the ways in which violent pasts persist; and the shortcomings of transitional justice? Using the lens of performance, this book analyses how transitional justice efforts are incapable of dealing with how unjust and violent pasts actually persist.

Gabrielle Lynch reveals the story of an ongoing political struggle requiring substantive socio-economic and political change that transitional justice mechanisms can theoretically recommend, and which they can sometimes help to initiate and inform,

HORIZON 2020 UNDERWRITE GUARANTEE

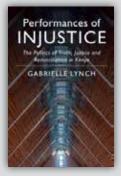
The government has updated its information for UK applicants to Horizon 2020, the EU's flagship programme for science and innovation.

A technical notice provides more detail on the Horizon 2020 underwrite guarantee, the recent extension to the guarantee and how the government plans to continue to support research and innovation in the UK.

It is aimed at UK organisations, such as universities and businesses, who receive Horizon 2020 funding or who are bidding for such funding. It will also be of interest to partner organisations who work with UK participants on Horizon 2020 projects.

The UK and EU's intention is that the eligibility of UK researchers and businesses to participate in Horizon 2020 will remain unchanged for the remaining duration of the programme. This is set out in the Financial Provisions of the draft Withdrawal Agreement, which has been agreed by both UK and Commission negotiators and welcomed by the other 27 EU countries at March European Council. but which they cannot implement or create, and can sometimes unintentionally help to reinforce.

Gabrielle Lynch is a Professor of Comparative Politics at the University of Warwick, and her research interests include ethnic identities and politics, elections and democratisation, and transitional justice and local reconciliation efforts with a particular focus on Kenya. She is an elected member of council for the British Institute in Eastern Africa. *Performances of Injustice* by Gabrielle



Lynch. ISBN 9781108444934, (paperback), 352pp @ £22.99. For more information see: www.cambridge. org/corebooks/ performances-ofinjustice/B74DCE99 5FB6F9DCB1AD4C 3BECC07323#

However, the government states that as a responsible government it needs to plan for every eventuality to ensure that cross-border collaboration in science and innovation can continue after EU exit.

UK Research and Innovation (UKRI) has been chosen to manage the underwrite delivery. In the first instance UK recipients of Horizon 2020 funding will be invited by UKRI to register their details on a dedicated portal on the GOV.uk website expected to go live in the autumn.

The portal is designed to ensure that UKRI has initial information about projects and participants to keep researchers and businesses informed of the next steps regarding the implementation of underwrite payments, should they be required.

The portal will remain open after the UK leaves the EU so that UK applicants can continue to register as and when they are informed that their bid has been successful.

You can find full details of how the underwrite guarantee would be managed in the government's Q and A: www.gov.uk/government/publications/uk-participationin-horizon-2020-uk-government-overview

EVENTS

25-26 SEPTEMBER

Longitudinal data analysis for social scientists

This two-day training workshop is led by Professor Vernon Gayle, AQMEN (Data Science for Social Research), University of Edinburgh. Across the social sciences there is widespread agreement that longitudinal data provides powerful research resources. Many books and courses on longitudinal data analysis are oriented towards statistics and they often lack adequate coverage of the common practical challenges associated with undertaking 'real' research. This workshop is specially designed for social scientists. It provides a brief and highly accessible introduction to quantitative longitudinal data analysis using Stata software. www.eventbrite.co.uk/e/ longitudinal-data-analysis-for-socialscientists-tickets-47662636228

16 OCTOBER

IFS Green Budget 2018

The IFS Green Budget 2018, in association with Citi and ICAEW and with funding from the Nuffield Foundation, will analyse the issues and challenges facing Chancellor Philip Hammond as he prepares for this year's Budget. The areas covered by IFS researchers will include a discussion of the outlook and risks facing the UK public finances and of options for the upcoming Spending Review. IFS researchers will also provide specific analysis of options for raising taxes, the impact of Brexit on the labour market, how the government spends its overseas aid budget, and home ownership among young people. www.ifs.org.uk/events/1613

7-8 NOVEMBER CRUISSE Network Conference 2018

The CRUISSE (Challenging Radical Uncertainty in Science, Society and the Environment) network was established at the beginning of 2017 by the EPSRC, ESRC, NERC and AHRC within RCUK - now UKRI. The 2018 conference will report and debate the outcome of the CRUISSE pilot projects with the teams conducting them. the stakeholders and different academic approaches. Opportunities will be available during the conference to advance ideas about improving how to manage decision-making under uncertainty and the network principals will propose new ways forward for research and practice. There will be a reflective plenary address from Professor John Kay. cruisse. ac.uk/events/event/cruisse-networkconference-2018

Making sense of society



The ESRC magazine *Society Now* aims to raise awareness of our research and its impact. It addresses a wide range of readers, from the MP to the businessperson, the voluntary worker to the teacher, the public through to the social scientist, and is published four times a year (spring, summer, autumn and winter).

Society Now offers a readable, intelligent, concise overview of current issues concerning society.

To subscribe to the magazine, please send an email including your full name and address to: societynow@esrc.ukri.org





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Economic and Social Research Council Polaris House North Star Avenue Swindon SN2 1UJ Tel: +44 (0)1793 413000 Fax: +44 (0)1793 413001

EDITOR IN CHIEF Jacky Clake jacky.clake@esrc.ukri.org EDITOR AND DESIGNER Nick Stevens nick.stevens@esrc.ukri.org INFOGRAPHIC Tidy Designs